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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,280	07/06/2001	Gang Luo	(9917) NCRC-0051-US	6088

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EXAMINER
FLEURANTIN, JEAN B

ART UNIT	PAPER NUMBER
2172	4

DATE MAILED: 07/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/900,280	LUO ET AL.	
	Examiner	Art Unit	
	Jean B Fleurantin	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-23 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This is in response to the application filed on July 07, 2001.

2. Claims 1-23 are presented for examination.

Drawings

3. The Drawings filed on 10/18/01 are approved by the Draftsperson under 37 CFR1.84 or 1.152 as indicated in the "Notice of Draftperson's Patent Drawing Review," PTO-948.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-23 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,484,159 issued to Mumick et al. ("Mumick").

As per claim 1, Mumick teaches a method for use in a database system, as claimed comprises storing a materialized join view based on at least two base relations (thus, materialized views 120 includes one or more materialized views 122A-Z, each of which is the result of a query that has been performed, each view is a compilation of information similar in structure to a

table, a view that has been stored is usable like a table; which is equivalent to storing a materialized join view based on at least two base relations)(see col. 3, lines 29-33);

storing at least one auxiliary relation containing one or more attributes of one of the base relations, the auxiliary relation partitioned according to a join attribute (thus, database 112 includes one or more tables 114A-Z which are compilations of information, generally tables are conceptualized as being organized in rows and columns although the storage format may be different, materialized views 120 includes one or more materialized views 122A-Z, each of which is the result of a query that has been performed, each view is a compilation of information similar in structure to a table, a view that has been stored is usable like a table; which is readable as storing at least one auxiliary relation containing one or more attributes of one of the base relations, the auxiliary relation partitioned according to a join attribute)(see col. 3,lines 20-33);

updating the at least one auxiliary relation in response to modification of the base relation (thus, propagation of the change table is particularly efficient when the change table depends only on the changes to the base relation; which is readable as updating the at least one auxiliary relation in response to modification of the base relation)(see col. 10, lines 42-44).

As per claim 2, Mumick teaches the method as claimed, further comprises storing the base relation that is not partitioned according to the join attribute, (see col. 3, lines 20-33).

As per claims 3 and 14, in addition to the discussion in claim 1, Mumick further teaches receiving a tuple into the database system (thus, the materialized view is further updated by inserting a tuple from the change table into the materialized view; which is equivalent to teaches receiving a tuple into the database system)(see col. 2, lines 32-33);

using the auxiliary relation to determine whether to update the materialized join view (thus, the materialized view is updated by applying the higher level change table to the materialized view using a refresh operation; which is readable as using the auxiliary relation to determine whether to update the materialized join view)(see col. 1, lines 49-53).

As per claims 4 and 16, in addition to the discussion in claim 1, Mumick further teaches receiving a tuple into a relation at a first node, wherein the tuple comprises a join attribute and the relation is not partitioned according to the join attribute (thus, using the join condition, for each tuple in the change table and updating each found tuple in the materialized view by performing operations indicated by the update function specification; which is readable as receiving a tuple into a relation at a first node, wherein the tuple comprises a join attribute and the relation is not partitioned according to the join attribute)(see col. 9, lines 60-63);

storing the tuple in an auxiliary relation at a second node, wherein the auxiliary relation is partitioned according to the join attribute (thus, database 112 includes one or more tables 114A-Z which are compilations of information, generally tables are conceptualized as being organized in rows and columns although the storage format may be different, materialized views 120 includes one or more materialized views 122A-Z, each of which is the result of a query that has been performed, each view is a compilation of information similar in structure to a table, a view that has been stored is usable like a table; which is readable as storing the tuple in an auxiliary relation at a second node, wherein the auxiliary relation is partitioned according to the join attribute)(see col. 3,lines 20-33);

identifying second tuples of a second relation (thus, the change table includes a plurality of tuples representing the; which is readable as identifying second tuples of a second relation)(see col. 1, lines 54-56);

changes and the materialized view includes a plurality of tuples (thus, tuples in the materialized view that match the tuple in the change table are found; which is equivalent to changes and the materialized view includes a plurality of tuples)(see col. 2, lines 23-25);

joining the tuple with the second tuples to produce join results (thus, the materialized view is updated by finding all tuples in the materialized view that match the tuple in the change table, using the join condition, for each tuple in the change table and updating each found tuple in the materialized view by performing operations indicated by the update function specification; which is equivalent to joining the tuple with the second tuples to produce join results)(see col. 1, lines 58-63).

As per claims 5 and 17, Mumick teaches the method as claimed storing identifying second join attributes in the second tuple (thus, the change table includes a plurality of tuples representing the; which is readable as identifying second join attributes in the second tuple)(see col. 1, lines 54-56);

compare the second join attributes with the join attribute of the relation (thus, tuples in the materialized view that match the tuple in the change table are found, using the join by matching the at least one selected attribute of a tuple in the change table with the at least one selected attribute of a tuple in the view, each found tuple in the materialized view is updated by updating the at least one other attribute of the tuple in the view using the at least one other

attribute of the tuple in the change table; which is readable as compare the second join attributes with the join attribute of the relation)(see col. 2, lines 1-9).

As per claim 6, Mumick teaches the method as claimed wherein identifying second tuples of a second relation comprises identifying second tuples of the second relation at the second node (thus, the change table includes a plurality of tuples representing the; which is readable wherein identifying second tuples of a second relation comprises identifying second tuples of the second relation at the second node)(see col. 1, lines 54-56).

As per claim 7, the limitations of claim 7 are rejected in the analysis of claim 4, and this claim is rejected on that basis.

As per claims 8 and 11, in addition to the discussion in claim 4, Mumick further teaches determining that the condition is not met, (see col. 11, lines 14-20); and

not storing the tuple in the auxiliary relation, (see col. 3, lines 43-45).

As per claims 9 and 12, the limitations of claims 9 and 12 are rejected in the analysis of claim 8, and these claims are rejected on that basis.

As per claims 10 and 21, in addition to the discussion in claims 4 and 8, Mumick further teaches determining that the join attribute is a key of the relation (thus, if a match is found due to the join condition then the corresponding matching tuple V of V is updated; which is readable as determining that the join attribute is a key of the relation)(see col. 11, lines 15-17);

determining that the second join attribute is a foreign key of a second relation, wherein the foreign key references to the attribute (thus, database 112 includes one or more tables 114A-Z which are compilations of information, generally tables are conceptualized as being organized in rows and columns although the storage format may be different, materialized views 120

includes one or more materialized views 122A-Z, each of which is the result of a query that has been performed, each view is a compilation of information similar in structure to a table, a view that has been stored is usable like a table; which is readable as determining that the second join attribute is a foreign key of a second relation, wherein the foreign key references to the attribute)(see col. 3,lines 20-33).

As per claim 13, in addition to the discussion in claim 1, Mumick further teaches a controller adapter to update the join view using the at least one auxiliary relation (thus, propagation of the change table is particularly efficient when the change table depends only on the changes to the base relation; which is readable as a controller adapter to update the join view using the at least one auxiliary relation)(see col. 10, lines 42-44).

As per claim 15, Mumick teaches the system as claimed, wherein the controller is further adapted to not update the join view after receiving some tuples, (see col. 3, lines 20-33).

As per claims 18, 20 and 23, in addition to the discussion in claim 9, Mumick further teaches determining that a join view definition excludes an attribute of the tuple (thus, the materialized view is updated by finding all tuples in the materialized view that match the tuple in the change table, using the join condition, for each tuple in the change table and updating each found tuple in the materialized view by performing operations indicated by the update function specification; which is readable as determining that a join view definition excludes an attribute of the tuple)(see col. 1, lines 58-63).

As per claims 19 and 22, in addition to the discussion in claim 4, Mumick further teaches determine that the condition is not met, (see col. 11, lines 14-20); and

not storing the tuple in the auxiliary relation, (see col. 3, lines 43-45).

Prior Art

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Segev et al., Maintaining materialized views in distributed databases. And Updating Distributed Materialized Views, both are related to updating materialized views in a distributed database systems.

Contact Information

6. Any inquiry concerning this communication from examiner should be directed to Jean Bolte Fleurantin at (703) 308-6718. The examiner can normally be reached on Monday through Friday from 7:30 A.M. to 6:00 P.M.

If any attempt to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Mrs. KIM VU can be reached at **(703) 305-8449.** The FAX phone numbers for the Group 2100 Customer Service Center are: ***After Final* (703) 746-7238**, ***Official* (703) 746-7239**, and ***Non-Official (703) 746-7240***. NOTE: Documents transmitted by facsimile will be entered as official documents on the file wrapper unless clearly marked "***DRAFT***".

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group 2100 Customer Service Center receptionist whose telephone numbers are **(703) 306-5631, (703) 306-5632, (703) 306-5633**.

Jean Bolte Fleurantin

July 24, 2003

JBF/

JEAN M. CORRIELUS
PRIMARY EXAMINER